MCF 3M Opener

12. A helicopter drops an aid package. The height of the package above the ground at any time is modelled by the function $h(t) = -5t^2 - 30t + 675$, where $h(t)$ is the height in metres and t is the time in seconds. How long will it take the package to hit the ground?

Oct 5-7:36 AM

MCF 3M Opener

12. A helicopter drops an aid package. The height of the package above the ground at any time is modelled by the function $h(t) = -5t^2 - 30t + 675$, where $h(t)$ is the height in metres and t is the time in seconds. How long will it take the package to hit the ground?

$0 = -5t^2 - 30t + 675$

$0 = -5(t^2 + 6t - 135)$

$0 = -5[t^2 + 15t - 9t - 135]$

$0 = -5[t(t+15) - 9(t+15)]$

$0 = -5(t+15)(t-9)$

$t = -15$ or $t = 9$

A: $-15 \times 9 = -135$, M: $-15 + 9 = -6$

The aid hits the ground at 9 sec.

Oct 5-7:36 AM

Section 3.5
q#6 p.68-Solving Using the TI83

6. The population of a city is modelled by the function $P(t) = 0.5t^2 + 10t + 200$, where $P(t)$ is the population in thousands and t is time in years. *Note:* $t = 0$ corresponds to the year 2000. According to the model, when will the population reach 312 000?

Population

$P(t) = 0.5t^2 + 10t + 200$

$P(t)$ = pop in thousands

t = time years ($t = 0$ year 2000)

When will it reach 312 000 (312)

Mar 10-9:16 AM

Calculating the Roots

$P(t) = 0.5t^2 + 10t + 200$

Sub $P(t) = 312$

$312 = 0.5t^2 + 10t + 200$

$0 = 0.5t^2 + 10t + 200 - 312$

$0 = 0.5t^2 + 10t - 112$

(8, 312) In the year 2008 the population is 312 000.

(-28, 312) In 1972 the pop was 312 000.

Mar 10-9:19 AM

$0 = 0.5t^2 + 10t - 112$

$0 = 0.5(t^2 + 20t - 224)$

$0 = 0.5(t^2 + 28t - 8t - 224)$

A: $28 \times -8 = -224$, M: $28 + -8 = 20$

$0 = 0.5(t(t+28) - 8(t+28))$

$0 = 0.5(t+28)(t-8)$

$t = -28$ (1972) or $t = 8$ (2008)

At 2008 the population will reach 312000.

Oct 1-9:19 AM

p168 & 169

#1 factor

2, 3, 4, 5, 6, 7, 8, 9, 10, 11

Test Wednesday Ch. 2 & 3

Mar 10-9:28 AM

31 $d(s)$ = stopping distance s = km/h

$d(s) = 0.0056s^2 + 0.14s$

$7 = 0.0056s^2 + 0.14s$

$0 = 0.0056s^2 + 0.14s - 7$

TI 83

calculate zeros

(25, 0)

(25, 7)

At 25 km/h it will take 7m to stop.

Mar 10-9:42 AM

Solve q8 p169

i) State Function

ii) State Ind / Dep variables

iii) State window requirements to display function

iv) How far back does the firefighter need to stand inorder to safely hit the fire?

Mar 8-7:41 AM

eqn (4,5) y-int -3

h, k

$y = a(x-4)^2 + 5$

$-3 = a(0-4)^2 + 5$

$-3 = a(4)^2 + 5$

$-3 = a(16) + 5$

$-3-5 = a(16)$

$-8 = a(16)$

$\frac{-8}{16} \quad \frac{a(16)}{16}$

$a = -\frac{1}{2}$

$y = -\frac{1}{2}(x-4)^2 + 5$

(0, -3)

x y

+3

(4, 5)

x y

Mar 8-10:33 AM

Oct 8-8:19 AM